Proposed New Rule 242
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REGULATION II – PERMITS AND FEES

RULE 242
EMISSION~~REDUCTION CREDITS~~ OFFSETS GENERATED BY THE VOLUNTARY ~~FOR~~ PAVING OF UNPAVED ROADS

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MARICOPA COUNTY

AIR POLLUTION CONTROL REGULATIONS

REGULATION II – PERMITS AND FEES

RULE 242

~~EMISSION REDUCTION CREDITS~~ EMISSION OFFSETS GENERATED BY THE VOLUNTARY ~~FOR~~ PAVING OF UNPAVED ROADS

SECTION 100 – GENERAL

101 PURPOSE: To establish procedures to calculate ~~for the calculation~~ of ~~particulate matter at less than 10 microns (PM10) emission reduction credits~~ emission reductions of particulate matter at 10 microns or less to be used as ~~emission~~ offsets through the voluntary paving of unpaved roads.

102 APPLICABILITY: This rule applies to persons who voluntarily elect to generate ~~PM10~~ emission reductions ~~credits~~ of particulate matter at 10 microns or less by paving unpaved roads in the ~~PM-10~~ non-attainment area and/or persons who ~~wish~~need ~~to utilize these emission reduction credits~~ offsets for the construction of new major stationary sources or major modifications to existing major stationary sources.

SECTION 200 – DEFINITIONS: For the purpose of this rule the following definitions shall apply. See Rule 100 (General Provisions and Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule.

201 EMISSION OFFSETS -Reductions of emissions in a non-attainment area obtained from existing sources,located in the vicinity of a proposed source,that offset the emissions increase from the new source or modification and provide a net air quality benefit.

202 ENFORCEABLE - Offsets are enforceable if they are independently verifiable, program violations are defined, those liable can be identified, and the EPA and the county can apply penalties and secure appropriate corrective action where applicable.

203 PERMANENT - Continuing or enduring for the duration of the New Source Review (NSR) obligation.

204 QUANTIFIABLE - Offsets that can be reliably and replicably measured by adhering to quantification protocol in Section 301.3.

205 ROADWAY SEGMENT - A section of roadway between two defined points, usually a mile.

206 SURPLUS - The amount of a permitted source's emission reduction that is not:

206.1 Required by federal, state, local law and the Clean Air Act; or

206.2 Included or required in the existing State Implementation Plan (SIP) ;or

206.3 Included in the Best Management Plan; or

206.4 Used by the source to meet any other regulatory requirement including, at the time offsets are used, Reasonable Available Control Technology (RACT), Reasonable Further Progress (RFP),milestones, or demonstrations of attainment; and

206.5 Required by any other legal settlement or consent decree.

SECTION 300 – STANDARDS

301 EMISSION REDUCTION CALCULATIONS

301.1 Net Emissions Change: The emission reduction associated with the paving of a segment of unpaved road shall be calculated as the difference, in tons per year, between the emissions from the road in the unpaved condition and the emissions from the road in the paved condition.

301.2 Vehicular Traffic Calculation: A source requesting offsets shall measure vehicular traffic in accordance with Section 501 of this rule. For each road segment, the source shall calculate vehicle miles traveled per day (vmt/day) by multiplying traffic count results by the length of the road segment in miles to the nearest 1/10 of a mile.

301.3 **301.3 Emission Factor Calculation:** To determine the difference in emissions from the road in its ~~paved~~ unpaved condition and the road in its ~~unpaved~~ paved condition, a ~~person~~ source shall use the emission factors contained ~~in the current approved State Implementation Plan (SIP) for the Arizona-Maricopa County PM10 non-attainment area and those described~~ in ~~the~~ EPA's "Compilation of Air Pollutant Emission Factors", often known as AP-42, Fifth Edition, Volume 1, Chapter 13.2.2, Unpaved Roads and Chapter 13.2.1, Paved Roads, December, 2003. The calculations and emission factors that are to be used to estimate emissions for unpaved and paved roads are found in Appendix A of this rule.

302 TRAFFIC COUNT MONITORING: For the purpose of calculating vmt/day for offset calculations, a source requesting emission offsets shall conduct traffic counts on each segment of road that is to be paved for:

302.1 A total of 48 hours that include one non-weekend, non-holiday weekday and one non-holiday weekend day; and

302.2 The calculation shall be performed using time-weighted averages of the two separate traffic counts and;

302.3 If the source has already conducted traffic counts on the segment of the road to be paved prior to (date of adoption), then these traffic counts may be used for the purpose of providing vmt/day for offset calculations.

3032 EMISSION ~~REDUCTION CREDIT~~ OFFSET CERTIFICATION

303.1 ~~**Credit**~~ Offset **Certification:** The Control Officer may certify an emission offset ~~credit~~ if he/she verifies the offset ~~credit~~ is ~~based on all of the following~~:

a. Permanent, lasting throughout the operation of the new or modified source ~~as evidenced by an enforceable agreement between or generator~~; and

b.**b.** ~~An emission reduction that is~~ Eenforceable by the Administrator upon approval of this rule into the Arizona SIP; and

~~a.~~ **c.** A surplus emission reduction which is not to be included in Rule 310.01 of the Maricopa County Rules and Regulations or to be included in resolutions listed in 40 CFR 52.120 (c)(100) ,and ~~which is an emission reduction not required by current regulations in the SIP, not already relied upon by a local government for SIP planning purposes, and not used by the source to meet any other regulatory requirement including, at the time ERCs are used, RACT,RFP, milestones, or demonstrations of attainment; and~~

d. A reduction in actual emissions, quantified by the methods listed in Sections 301 and 302 of this rule.

303.2 The source requesting the offsets ~~or~~ generatormust shall notify the Control Officer ~~when the reduction occurs~~ when the paving of the segment of roadway in question is completed and if applicable, when the local government adopts the road into its road maintenance program. (APS)

~~**302.1**The source or generator shall notify the Control Officer when a municipality adopts the paved road into its road maintenance program.~~

SECTION 400 – ADMINISTRATIVE REQUIREMENTS

401 APPLICATION PROCESS FOR EMISSION OFFSETS - The application for certification and issuance of offsets shall consist of an offset plan that includes all of the following, at a minimum:

401.1 Identification of the source of the offsets as those offsets generated from the paving of unpaved roads.

401.2 Identification of the location of the roads that will be paved for credit.

401.3 A copy of the agreement to prove that the paving work and maintenance will be performed that states:

a. The source requesting the offsets, with the local government, that the source will pave the unpaved road in the local government's transportation network and road maintenance program or

b. The source requesting the offsets, with the private road owner(s) and the local government, to pave the road to local government standards and for the local government to adopt the road into its transportation network and road maintenance program within 1 year of paving or

c. The source requesting the offsets, with the private road owner(s), to pave the road, to continue to maintain the paved road to the standard specified in the agreement within 1 year of paving; and to accept a deed restriction wherein the road will continue to remain paved and maintained to the standard specified in the agreement.

401.4 The calculations performed to arrive at the number of vehicle miles traveled and the times and dates at which the vehicle counts occurred and their location.

401.5 The results of the initial regional average silt content testing of the trafficked parts of unpaved roads and unpaved parking lots.

401.6 If the time between the application to pave the road and the initiation of the paving of the road is longer than a 3 year period, then the application process shall be initiated and resubmitted again to the Control Officer using current traffic counts and emissions calculations.

SECTION 500 - MONITORING AND RECORDS

501 TRAFFIC COUNT RECORDS – A source ~~requesting~~ utilizing emission reduction offsets ~~credits for~~ produced by the paving of unpaved roads shall submit written records of vehicle counts as conducted according to Section 302 of this rule to the Control Officer.

502 EMISSION REDUCTION CALCULATIONS FOR VEHICLES TRAVELING UNPAVED/PAVED ROADS - A source requesting emission reduction offsets produced by the paving of unpaved roads shall submit written records of the calculations that quantify emissions from the road, both unpaved and paved.

5037 PAVING ~~AGREEMENT~~ COMPLETION RECORDS - A source requesting emission reduction ~~credits~~ offsets produced by the paving of unpaved roads shall provide to the Control Officer a ~~copy~~ notice ~~of the agreement for~~ that the paving of the road is complete ~~paving and maintenance of the road~~ from the party responsible for paving the road and maintaining the road, whether the party is a government entity or a private entity. The paving completion records should also indicate the location of the particular segment of the road that was paved and the date the paving was completed.

504 PAVING MAINTENANCE RECORDS - A source requesting emission offsets produced by the paving of unpaved roads shall provide a copy to the Control Officer of the agreement for maintaining the road from the party responsible for the maintenance on the road, whether the party is a government entity or a private entity.

505 PAVING RESURFACING RECORDS - A source requesting emission offsets produced by the paving of unpaved roads shall provide a copy to the Control Officer of the agreement for resurfacing the road, if and when it occurs, from the party responsible for the resurfacing of the road.

5068 RECORDS RETENTION - Records shall be kept a minimum of five (5) years after the road is paved.

507 TEST METHOD: The name and location of the Maricopa County Test method for silt testing as it exists in the Maricopa County Air Pollution Control Rules and Regulations is listed below. Copies of this test method can be found at Maricopa County Environmental Services Department, 1001 N. Central Avenue, Phoenix, Arizona 85004-1942. Maricopa County Air Pollution Control Rules and Regulations, Appendix C, Section 2.1.2, " Silt Content Test Method."

APPENDIX A

1. UNPAVED ROADS:

a. The formula for estimating pounds of size-specific particulate emissions for vehicles traveling on publicly accessible roads, dominated by light duty vehicles is:

$$E = k\,(s/12)^{a}\,(S/30)^{b} \;-\; C$$
$$(M/0.5)^{c}$$

where k,a,b,c and d are empirical constants given in Table A below and

E = size - specific emission factor (lb/VMT)
s = surface material silt content (%)
W = mean vehicle weight (tons)
M = surface material moisture content (%)
S = mean vehicle speed (mph)
C = emission factor for 1980's vehicle fleet exhaust, brake wear and tear.

b. The formula for calculating emissions for vehicles traveling on unpaved surfaces at industrial sites is:

$$E = k\,(s/12)^{a}(\,W/3)^{b}$$

where k is an empirical constant listed below in Table B below and

E = size - specific emission factor (lb/VMT)
s = surface material silt content (%)
W = mean vehicle weight (tons)

c. The source characteristics s, W and M in these two formulas are referred to as correction parameters for adjusting the emission estimates to local conditions. The metric conversion from lb/VMT to grams (g) per vehicle kilometer traveled (VKT) is as follows:

1 lb / VMT = 281.9g / VKT

TABLE A - CONSTANTS FOR EQUATION #1 - UNPAVED PUBLIC ROADS

CONSTANT	PM-2.5	PM-10
k (lb/VMT)	0.27	1.8
a	1	1
b	-	-
c	0.2	0.2
d	0.5	0.5
Quality Rating	C	B

* Assumed equivalent to total suspended matter (TSP)

TABLE B -CONSTANTS FOR EQUATION#2 - UNPAVED INDUSTRIAL ROADS

CONSTANT	PM-2.5	PM-10
k (lb/VMT)	0.23	1.5
a	0.9	0.9
b	0.45	0.45
c	-	-
d	-	-
Quality Rating	C	B

* Assumed equivalent to total suspended matter (TSP)

It is important to note that the vehicle-related source conditions refer to the average weight, speed, and number of wheels for all vehicles traveling the road. Only one emission factor should be calculated that represents the "fleet " average of 2.4 tons for all vehicles traveling the road. If 98% of traffic on the road are 2-ton cars and trucks while the remaining 2% consists of 20-ton trucks, then the mean weight is 2.4 tons. Therefore a source should not determine one factor for the 2-ton vehicles and a second factor for the 20-ton trucks.

2. PAVED ROADS:

The quantity of particulate emissions from resuspension of loose material on the road surface due to vehicle travel on a dry paved road may be estimated using the following empirical expression:

$E = k\,(sL/2)^{0.65}\,(W/3)^{1.5} - C$

where:

E = particulate emission factor (having units matching the units of k
k = particulate size multiplier for particle size range and units of interest
sL = road surface silt loading (grams per square meter) (g/m^2)
W = average weight (tons) of the vehicles traveling the road
C = emission factor for 1080s vehicle fleet exhaust, brake wear, tire wear

The particulate size multiplier (k) above varies with aerodynamic size range as shown in Table 3. To determine particulate emissions for a specific particle range, use the appropriate value of k in Table C.

It is important to note that the vehicle-related source conditions refer to the average weight, speed, and number of wheels for all vehicles traveling the road. Only one emission factor should be calculated that represents the "fleet " average of 2.4 tons for all vehicles traveling the road. If 98% of traffic on the road are 2-ton cars and trucks while the remaining 2% consists of 20-ton trucks, then the mean weight is 2.4 tons. Therefore a source should not determine one factor for the 2-ton vehicles and a second factor for the 20-ton trucks.

TABLE C - PARTICLE SIZE MULTIPLIERS FOR PAVED ROAD EQUATION

(k constant)

SIZE RANGE	g/VKT	g/VMT	lb/ VMT
PM -2.5	1.1	1.8	0.0040
PM -10	4.6	7.3	0.016
PM -15	5.5	9.0	0.020
PM -30	24	38	0.082